SkyScoop

The Newsletter of the National Weather Service in Wilmington, Ohio

National Oceanic and Atmospheric Administration (NOAA) – US Department of Commerce (DOC)

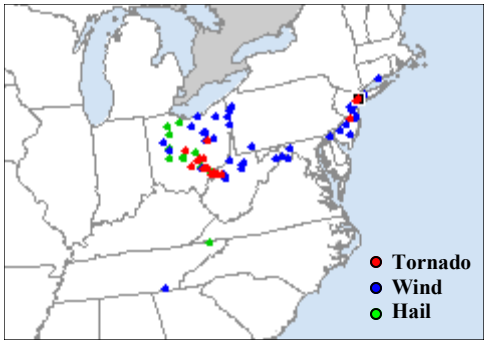
ISSUE 18 FALL/WINTER 2010

Tornado Outbreak Affects Ohio in September

Andrew Snyder

A cold front sparked a line of thunderstorms as it crossed the Ohio Valley during the late afternoon and early evening hours of September 16, 2010. With a potent upper level trough overhead as well as plenty of instability, wind shear, and low level moisture, all the ingredients were in place for the development of supercell thunderstorms. These conditions were maximized over central and southeast Ohio, where several rotating thunderstorms spawned tornadoes.

The National Weather Service in Wilmington issued six tornado warnings and eight severe thunderstorm warnings during this event. Four areas of tornadic damage were confirmed within NWS Wilmington's warning area, as well as one microburst. There were also numerous reports of large hail and damaging winds that afternoon. This article will focus on three supercells that produced tornadoes and a microburst within Wilmington's warning area that afternoon and early evening, although additional tornadoes occurred nearby in southeast and northeast Ohio.



September 16 storm reports over the Ohio Valley. ***Image courtesy of NOAA/SPC.***

The first storm of interest developed supercell characteristics around 3 pm as it emerged from a cluster of strong storms over west central Ohio. As the storm approached Bellefontaine, an impressive hail core descended to the ground and induced a microburst. Hail up to golf ball size was reported in this area, and strong winds drove it into the side of at least one house, causing significant siding damage. Along the microburst's two-mile path, winds estimated to be in the 70 to 90 mph range completely destroyed several barns, damaged roofs and siding of other structures, and blew over numerous trees.

Severe hail damage to the siding of a house near Bellefontaine. ***Photo courtesy of Helen Norris, Logan County EMA.***

This powerful storm moved into southern Delaware County just after 4 pm, with strong wind gusts tearing off a portion of the Olentangy High School gym and knocking down additional trees. As the storm approached the Hoover Reservoir near Galena around 4:42 pm, a brief EF0 tornado with estimated winds up to 75 mph touched down amongst several houses on the west side of the reservoir. While numerous trees were snapped, there was fortunately no damage to any homes. This thunderstorm went on to produce golf ball size hail over Licking County.

Further south along the squall line, another supercell developed over Clark County around 4 pm and moved east. Golf ball size hail was reported near Grove City, and rotation increased as the storm continued into Fairfield County. Around 5:35 pm, a weak tornado touched down near West Rushville, mainly causing

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INSIDE THIS ISSUE:

A Letter from the Warning Coordination Meteorologist

Dear Skywarn Spotter,

Skywarn spotters, providing reliable real-time severe weather reports, are a vital part of the warning process. The National Weather Service office in Wilmington will be starting its 2011 spotter training sessions soon after January 1st. All volunteer spotters should attend a training session every two to three years. Our program changes from year to year, and there is always something new to learn. Be sure to check our website in the coming months for a listing of classes; it will be updated as new classes are scheduled. If you have any questions, please contact our office.

I would also like to extend a thank you to all the Skywarn spotters that have supported our warning program in the past. This includes emergency service personnel, private citizens, and the amateur radio community. Amateur radio operators play a critical role in the Skywarn program, and their efforts are greatly appreciated. Special thanks go out to those amateur radio operators that function as section net control operators and the amateur radio operators that work with us here at the NWS Wilmington office. They activate upon our request, no matter what time of the day or night.

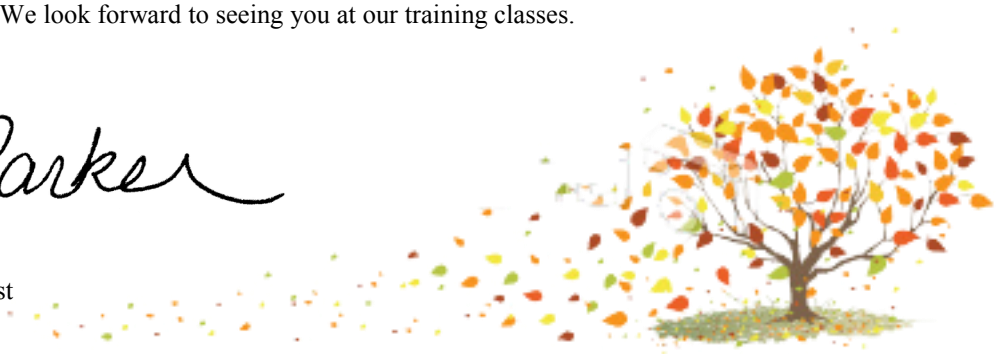
This newsletter includes articles which we hope you find interesting and informative. There are a few articles on weather events from this past year, such as the May tornadoes in Adams and Brown/Highland counties, the September tornadoes in central Ohio, the devastating July flooding in Scioto County (Ohio) and Lewis and Mason Counties (Kentucky), and significant events from the 2009-2010 winter season. There is also an article on a spotter recognition award which was presented to one of our spotters in Lewis County, as well as an article on how to be an effective storm spotter. We hope you find this latest issue of SkyScoop to be of interest, and we would love to receive any ideas you might have for future newsletters. You can send your ideas via email to spotreport.iln@noaa.gov. If you don't have internet access, please send them to us via postal mail in care of the Warning Coordination Meteorologist.

We extend a special welcome to any new Skywarn spotters and also thank those who continue to work with us as members of the Wilmington Skywarn network. We look forward to seeing you at our training classes.

Regards,

Mary Jo Parker

Mary Jo Parker
Warning Coordination Meteorologist
National Weather Service
Wilmington, Ohio



Have an Exciting Weather Photo? We Want to See It!

The National Weather Service in Wilmington wants to make it possible for weather spotters across the tri-state to showcase their photos to the world! Pictures may be used in future editions of this newsletter, for spotter training, and/or in the photo gallery on our website. To participate, send your photos or any other questions to **spotreport.iln@noaa.gov**. Remember to express your permission for your credited work to be displayed on our website, in this publication, or in a spotter training presentation.

Please be careful! Lightning, flooding, tornadoes, and ice storms make for great photography — but great danger as well. The staff of the National Weather Service urges everyone to respect the weather and take photographs only when it is safe to do so.

Are You Prepared for Winter?

A disaster supply kit should include the following items:

- 3-day supply of water (one gallon per person, per day)
- Non-perishable foods
- One change of clothing and shoes per person
- Portable radio and flashlight with extra batteries
- Extra set of car keys
- Cash/credit card
- Special items for infant, elderly, or disabled family members
- One blanket or sleeping bag per person
- First-aid kit and prescription medications
- Emergency tools
- Battery-powered NOAA Weather Radio

For more winter weather information and safety tips, visit:
http://www.weather.gov/om/winterstorm/winterstorms.pdf

Highlights of the 2009-2010 Winter Season

John Franks

This past winter, there were several memorable snow events that affected a portion (or all) of the Ohio Valley. Some of these were clear-cut "run to the store for milk, eggs, and bread" cases. Others, however, were sneakily deceptive with less than a half inch of snow at simply the worst possible time, wreaking havoc during rush hour.

Such was the case on Monday, December 7th, when a mid-level disturbance caused a very brief snowfall across the region at the beginning of the morning rush hour. By 8:30 am, the quick-moving feature was in central Ohio and moving east out of the area. The trace to quarter inch of snow that this system produced caused unusually long traffic delays of two to three hours in metropolitan areas, along with numerous accidents across the region.

Blowing and drifting snow in Auglaize County from an early February snowstorm. ***Photo courtesy of Brian Counts.***

An Alberta Clipper moved southeast through the Ohio Valley on Thursday, January 7th. A rather cold air mass was in place, which allowed for very fluffy snow to accumulate over a prolonged period of time. Snow totals from this event ranged from three to five inches across the region.

A low pressure system tracked south of the Ohio Valley into the central Appalachians on Friday, February 5th. Precipitation associated with this system began as a wintery mix during the predawn hours before transitioning to all snow later that morning. Heavy snow bands had developed north of the I-70 corridor by Friday afternoon, with lighter snow or a wintery mix further south. The snow continued through the better part of the evening and overnight hours, finally tapering off Saturday morning from west to east. A foot or more of snow fell along and north of the I-70 corridor, while two to four inches fell along the Ohio River.

Low pressure in the Mississippi Valley strengthened as it moved into the Ohio Valley early on Tuesday, February 9th. Snow began to fall on Monday night and later spread northeast across the area by early Tuesday. Later Tuesday afternoon, the snow mixed with some rain south of the Ohio River. Strong, cold winds changed the precipitation back to snow as the system moved out of the region Tuesday night and caused significant blowing and drifting snow. Total snowfall across most of the area ranged from four to seven inches, although slightly lesser amounts were reported where the snow mixed with rain and sleet.

Another strong low pressure system tracked south of the Ohio Valley on Monday, February 15th. As it approached the area, snow overspread the region with total accumulations generally ranging from four to ten inches. The heaviest snowfall was found along and south of the I-71 corridor between Cincinnati and Columbus. This was the third major February snowstorm for the region, and it helped break several records for monthly snowfall. By the end of the month, Columbus and Cincinnati had both experienced their snowiest February on record, with 30.1 inches and 26.1 inches, respectively. Dayton finished the month with 23.0 inches, making for its second snowiest February on record.

On a related note, the Wilmington NWS office changed the criteria for winter storm watches/warnings and winter weather advisories as of November 15, 2009. This affects approximately the northern third of the county warning area, roughly running along and north of the I-70 corridor from Richmond to Dayton to Columbus and Newark. For more information on these changes, go to www.weather.gov/iln and click on the "Winter Weather" link found in the "Additional News and Links" block at the bottom of the page.

Columbus			Cincinnati			Dayton		
Rank	Snowfall	Year	Rank	Snowfall	Year	Rank	Snowfall	Year
1	**30.1"**	**2010**	**1**	**26.1"**	**2010**	1	31.6"	1910
2	29.2"	1910	2	21.4"	1914	**2**	**23.0"**	**2010**
3	24.4"	2003	3	20.6"	1910	3	21.2"	2003
4	19.6"	1914	4	19.9"	1993	4	17.5"	1979
5	16.4"	1979	5	18.5"	1998	5	16.7"	1914

The top 5 snowiest Februaries on record for Columbus, Cincinnati, and Dayton. Both Columbus and Cincinnati experienced record setting snowfall this past February.

Spotter Paula Franke Awarded For Exceptional Public Service

Dan Hawblitzel and Julie Dian-Reed

Spotter Paula Franke (center) receives recognition from MIC Ken Haydu (right) and EMA director Carl Chaney (left). ***Photo courtesy of Julie Dian-Reed (NWS employee).***

On September 14, 2010, Ken Haydu (Meteorologist in Charge), Mary Jo Parker (Warning Coordination Meteorologist), and Julie Dian-Reed (Service Hydrologist) of the Wilmington National Weather Service office presented spotter Paula Franke with a Special Service Award for her exceptional dedication to the NWS spotter program. Throughout her many years as a storm spotter, Ms. Franke has consistently provided valuable severe weather, rainfall, and snowfall reports from her location in western Lewis County, Kentucky. These reports have significantly aided NWS meteorologists with real-time information in an otherwise data-sparse location. Ms. Franke has been a spotter for nearly thirty years, having also served as a spotter for the NWS Chicago office while living in northern Illinois.

Perhaps Ms. Franke's dedication was most noticeably exhibited on July 20-21, 2010, when a devastating flash flood struck Lewis County. Ms. Franke provided NWS meteorologists with frequent rainfall observations during the late evening and overnight hours, including two reports within twenty minutes of each other to indicate she had received an inch of rainfall in that short amount of time. With virtually no rain gages located near the heaviest rainfall, Ms. Franke's real-time ground reports were critical to the NWS warning process that night. Her reports conveyed the extreme nature of the heavy rainfall over Lewis County, which led NWS meteorologists to issue a flash flood warning and notify the county 911 center of the extreme flooding potential well before the worst of it began. Despite the destruction caused by the flooding in Lewis County that night, all rescues were successful and no lives were lost.

Ms. Franke deserved this Special Service Award due to her dedication to the NWS spotter program and to the protection of lives and property in her community. Thank you and congratulations, Paula!

Extreme Flash Flooding in Lewis, Mason, and Scioto Counties

Julie Dian-Reed

A fairly uncommon situation for the NWS Wilmington forecast area unfolded on the night of July 20, 2010, when an extreme flash flood developed across several counties. An area of thunderstorms with exceptionally heavy rainfall settled in over Mason, Lewis, and far southeast Scioto counties. Spotter Paula Franke (see article above) of Lewis County, Kentucky, reported an inch of rain in only twenty minutes. While NWS Wilmington forecasters have experienced flash flood warning scenarios fairly regularly, the intense nature of this rainfall over Lewis County prompted the first ever NWS Wilmington-issued "Flash Flood Emergency."

The remnants of flash flooding on KY 57 in Lewis County. ***Photo courtesy of Dennis Brown/***Lewis County Herald.

Southern and central Lewis County accumulated six to over eight inches of rain in about three to five hours. Such extreme rainfall rates, combined with the fact that the rain largely occurred between 10 pm and 2 am, created a deadly scenario very quickly. This heavy rain also occurred over some of the most variable terrain within the warning area, causing the flood waters to rapidly travel through narrow valleys. Dozens of high-water rescues occurred, many homes were completely destroyed, and some houses were even swept off their foundations by the rushing waters. The devastation was most widespread through Lewis and Mason counties, which were both later declared federal disaster areas.

The flash flooding also claimed the life of a 53-year-old woman from Franklin Furnace in southeast Scioto County, Ohio. Radar estimated that this area received about four inches of rain in less than three hours. Scioto County Emergency Manager, Kim Carver, suspected that debris-clogged streams may have contributed to the Franklin Furnace flash flooding, as many creeks were still clogged by downed trees from the September 2008 wind storm and 2009 ice storms. Several homes were destroyed and numerous high-water rescues were performed in this area as well.

How to Be an Effective Storm Spotter

Dan Hawblitzel

The National Weather Service in Wilmington commends all storm spotters for their dedication to the NWS mission. By volunteering to provide real-time storm information to the NWS, you help us protect lives and property during hazardous weather. All of our spotters deserve special thanks for their dedication to their community! To maximize the effectiveness of your storm reports, here are a few guidelines to remember:

Tornadoes and Storm Rotation:

- Report only what you see! Never make assumptions.
- Never withhold a report just because you are unsure of what you are observing. Rotation may not be observable if a feature is too far away or obscured by rain or haze, but do not let this stop you from giving a report. Simply describe what you are seeing and state that rotation/motion is unable to be assessed from your vantage point.
- Give details!
  - Ragged vs. laminar
  - Observable rotation?
  - Upward motion?
  - How long has it been observed?
  - What direction and how far away is it from you?
  - How far toward the ground does it reach?
  - Is your view obscured?
- If you are undoubtedly seeing a tornado or funnel cloud, say so and tell us why!

Damaging Wind:

- Report size and health of any downed limbs (3" or larger in diameter) and/or trees.
- Report type and extent of damage to structures.
- Be aware that wind speed estimates are subject to large errors. Winds greater than 58 mph will usually be accompanied by some damage to trees and/or structures.

Hail:

- Report hail 1/2" or larger in diameter.
- Relate hail size to coins, balls, or other well-known objects.
- Report hail size as a range (e.g. "dime to nickel size"), including the largest stone you see.
- Report hail covering the ground, regardless of its size.

Heavy Rain and Flooding:

- Report 1" or more of rainfall in an hour or less.
- Report water over roads (6" or greater in depth) or water entering homes/businesses. Give a depth estimate if possible and state whether the water is standing or rushing.
- Report objects or trees being carried downstream by swollen creeks and rivers.

Following these guidelines will maximize the effectiveness of your report to the NWS. By supplying frequent and helpful reports, you provide an indispensable contribution to public safety. With this kind of dedication, you may be the next spotter to be recognized for outstanding service to your community!

Would You Like to be an Online Snow Spotter?

Jim Lott and Todd Shobe

The National Weather Service in Wilmington is looking for people interested in participating in an experimental online snow spotter program for the upcoming winter. The goal of this program is to increase real-time snowfall reports received by our office. Since snowfall amounts can vary greatly over short distances, it is critical for us to have as many reliable snowfall reports as possible. These real-time reports are utilized in the forecast process, which helps to keep our products up to date. During snow events, spotters registered for this experimental program will enter snowfall totals into an online form via a web browser. The snowfall data will then be routinely updated on our webpage throughout the snow event and also included in public snowfall data products issued from our office both during and after the event.

In an effort to recruit as many individuals as possible and therefore increase the number of snowfall reports we receive, we are trying to keep the requirements as simple as possible. When you measure the snow would be up to you (whenever you feel it is significant), but we would be looking for storm total snow amounts during and immediately after snow events. Once your information is entered online, it will undergo a QC check and then be posted to our webpage. Reports relayed to us via telephone are still welcomed, but this online program will allow for somewhat faster processing of the information by our staff.

If you already serve as one of our snow spotters, please consider becoming a part of this new program. Also, if you already send snow information via eSpotter, please let us know you would like to be included in this new program. Training information will be provided to ensure everyone follows similar measurement procedures. Anyone interested can find more information at http://www.erh.noaa.gov/iln/snownetworkrequest.php. Thank you for your interest, and we look forward to signing you up!

National Weather Service Harnesses the Wind

Michael Kurz

Installation of the wind turbine in December 2009 (photo at left) and the wind turbine in full operation in 2010 (photo at right). ***Photos courtesy of NWS.***

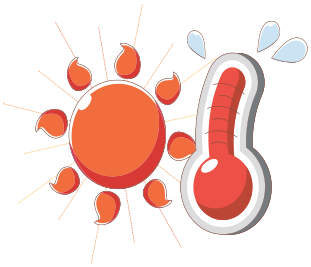
If you have driven past the National Weather Service office in Wilmington anytime since late last year, you undoubtedly have noticed a new wind turbine situated amongst the various pieces of equipment on the property. Manufactured by Bergey Windpower Co., this Excel-S turbine system was originally purchased by the Department of Commerce to power an automated surface observing system (ASOS) on the East Coast. However, it could not be installed at the site without expensive excavation, so instead it was installed at the weather forecast office here in Wilmington to test the feasibility of wind power for the NWS.

The 23-ft diameter blades require a wind speed of 5 mph to start spinning, and the turbine starts producing power at a wind speed of 7.5 mph. Mounted on top of an 80-ft self-supporting tower, this particular turbine produces a maximum of 10 kilowatts of power at a wind speed of 29 mph. Although the system offsets some of the monthly electricity costs, a larger turbine (capable of producing 50 kilowatts of power) would be much better suited for the energy consumption needs of NWS offices.

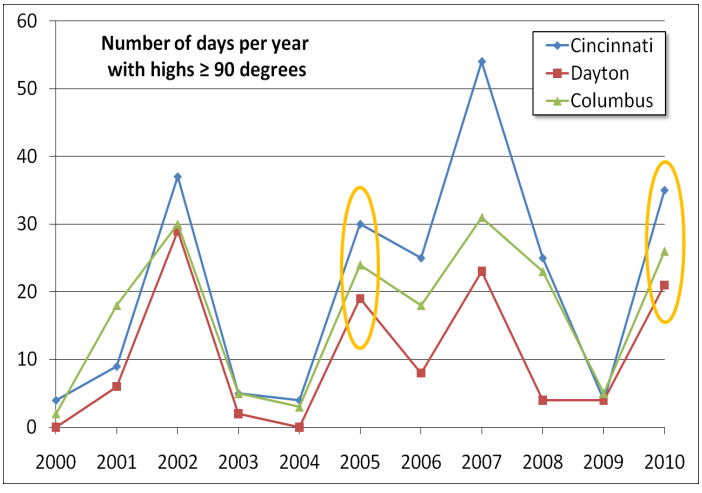
The Hot and Humid Summer of 2010

John Franks and Seth Binau

When the early to middle part of August came, the Ohio Valley was in the grip of a stifling air mass. Daytime highs were typically well over 90°, and nighttime lows failed to drop below 70° for several days. This uncomfortable period was met with an increase in air conditioning use, as well as an abundance of questions as to whether it was normal to see such a trend.



The worst of this heat eventually ended on August 16 when highs only climbed into the low to mid 80s and overnight lows dropped to near 60°. Several days at the end of the month still saw readings top 90° again, but a strong mitigating factor was that overnight lows finally did fall below 70°.



Nighttime low temperatures play an important role in how uncomfortable a heat wave feels because they indicate how much humidity is in the air. Everyone knows that hot and dry conditions are much more comfortable than hot and humid conditions. Dry air allows perspiration to evaporate and cool your skin, whereas humid air slows this cooling process down.

The chart at left shows a ten-year tally of how many days each year the three major metro areas have had temperatures rise to 90° or higher. The warm season of 2010 does not appear to be unusually high with regard to the number of days in the 90s, but it certainly is not low either. This year seems to be best paired with 2005 temperatures. In addition, note that there were four years where all three stations did not see even ten days over 90°.

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Spring Tornadoes and Flash Flooding Affect Southwest Ohio

Andy Hatzos

Conditions were suitable for severe weather across southwest Ohio during the afternoon and evening hours of May 21, 2010. Strong wind shear created a favorable environment for rotating thunderstorms to develop, leading to the first two confirmed tornadoes of the year within NWS Wilmington's warning area. Heavy rainfall was also responsible for significant flash flooding that evening.

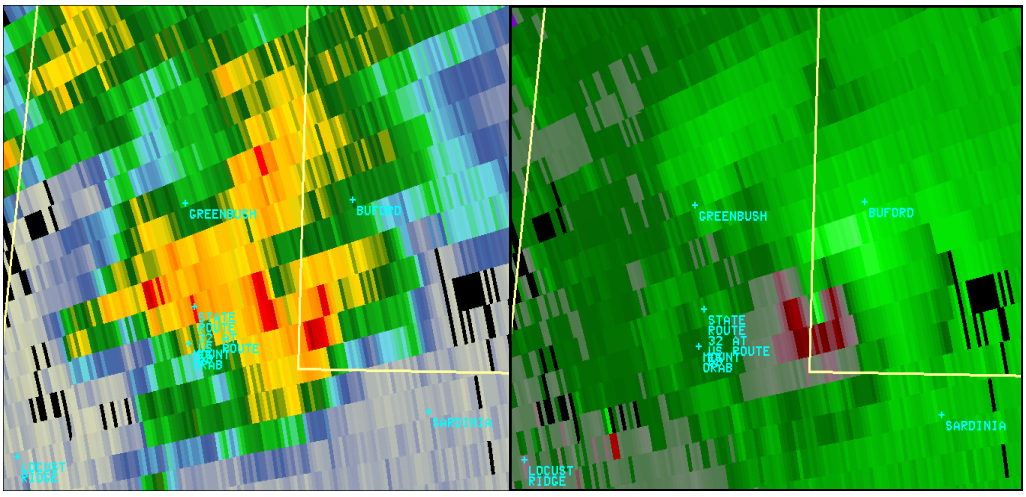
In addition to the extensive roofing damage, a 2x4 was driven into the deck of this house near Mt. Orab. ***Photo courtesy of Seth Binau (NWS employee).***

An unstable air mass developed across the region during the afternoon hours as an upper level low pressure system moved east across the Great Lakes. A surface trough of low pressure pushing eastward through the middle Ohio Valley helped trigger thunderstorm development in the Cincinnati area by mid-to-late afternoon, though most of the afternoon thunderstorms were relatively weak.

By 6 pm, the storms had begun to strengthen and became more organized. The first tornado occurred with a supercell just east of Mount Orab, near the border of Brown and Highland counties. This tornado, which occurred at 6:44 pm, was rated an EF1 on the Enhanced Fujita Scale with estimated winds up to 100 mph along a three-mile path. Significant damage was done to a residence on Sicily Road in Highland County, with a section of roofing torn off, barns destroyed, and numerous trees uprooted.

A second EF1 tornado touched down in southwestern Adams County at 8:44 pm, impacting a 2.6 mile-long stretch of land southwest of Bentonville. Homes and barns in the path of the tornado, which closely followed Old Dutch Road, suffered considerable damage from estimated winds up to 110 mph.

While NWS Doppler Radar was very helpful in assessing the large-scale characteristics of each of these thunderstorms, the Terminal Doppler Weather Radar (TDWR) near the Cincinnati/Northern Kentucky International Airport was crucial in detecting the small rotational features that led to tornado development. The detail provided by TDWR data allowed forecasters to issue warnings with greater confidence and accuracy than would have otherwise been possible.



The Cincinnati TDWR provided a detailed look at the strong thunderstorm along the Brown/Highland County line just east of Mt. Orab at 6:47 PM. A hook echo can bee seen in the reflectivity (precipitation intensity) image on the left, indicative of a rotating thunderstorm. The velocity image on the right shows a tight wind circulation in the same storm. ***Images courtesy of FAA.***

Tornadoes were not the only cause for concern on May 21st. Very heavy rainfall was also produced by many of the thunderstorms, and flash flooding quickly became a problem. Roadways in Warren County became impassable due to rushing water, and significant water damage occurred at The Beach Waterpark in Mason, Ohio.

Both of the tornadic storms that evening were also responsible for flooding issues of their own. The supercell that produced the tornado near Mount Orab also flooded out fields and roadways across central Highland County. Even more significant flash flooding occurred with the supercell that affected Adams County between Bentonville and West Union, where radar estimated five inches or more of rain fell in just two or three hours. A cooperative observer in West Union measured a total of 3.40 inches of rain that evening.

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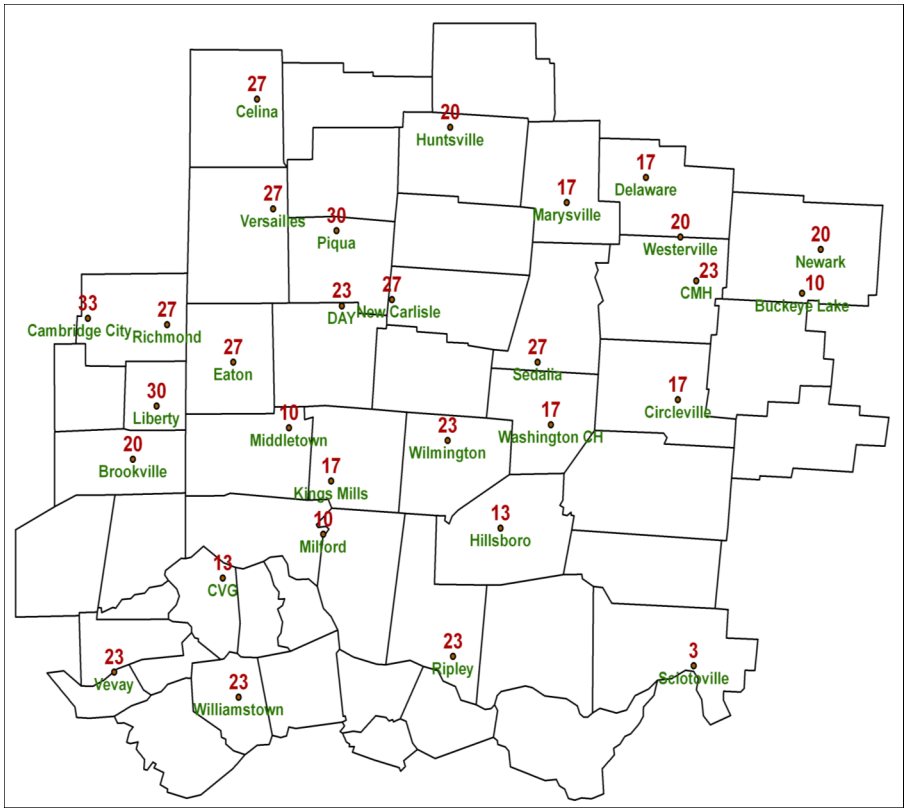
The Probability of a White Christmas

Michael Kurz

Like it or not, it won't be too much longer before snow begins to fly across the region again. And once the calendar flips to December, many folks will begin dreaming of a white Christmas. What exactly constitutes a "white Christmas?" Different individuals have different criteria, such as: any snow (even a single snowflake) falling on December 25; at least one inch of snow falling on December 25; or snow of any depth covering the ground on December 25.

According to the National Climatic Data Center, an official white Christmas requires a snow depth of at least one inch on Christmas morning. To determine the probability of a white Christmas across NWS Wilmington's forecast area, numerous observing stations with snow depth data from 1971 to 2000 (the most recent thirty-year climate normal period) were selected. The number of Christmas mornings with a snow depth of an inch or more were added up for each station and then divided by thirty to obtain the percentage (or probability) of white Christmases at each location.

The map to the right shows the stations that were examined and their corresponding probabilities (expressed as percentages). One can see that the highest probabilities are generally located over west central Ohio as well as the Whitewater Valley of Indiana. This area often experiences lake effect snow bands streaming off southern Lake Michigan, and it is also favorably situated for receiving snow from winter storms tracking through the region. Although there is less data across south central Ohio, the probability of a white Christmas is much lower there, as one would expect. Temperatures are typically warmer there, as the area is often situated in the warm sector of winter storms as they track through the region. Of course, there is also some inherent noisiness in the data due to each station's unique elevation and exposure. One thing is for certain from the data presented here...if you desire a high probability of a white Christmas, you are better off spending the holiday in Duluth, MN or Marquette, MI, where there is a 96% or better chance for at least one inch of snow on the ground on December 25th!



The probability of at least one inch of snow on the ground on Christmas morning, based on thirty years of data from 1971-2000. Numbers are shown as percentages.

Summer 2010

(continued from page 6)

This past meteorological summer (Jun-Aug) will be remembered not so much for record breaking heat but rather for a stifling combination of heat and humidity that kept coming in waves. Dew points (a measure of the amount of moisture in the air) during the summer flirted with record high values. Had it not been for a late-August intrusion of dry air, this summer may have broken records for the highest average dew point on record at all three major metropolitan areas. The persistent above-average temperatures made 2010 one of the hotter summers in recorded history as well. The table at right shows this past summer's average temperature and dew point rankings for all three metro areas. Compared to previous years, it could be argued that the summer of 2010 was one of the most uncomfortable ever in terms of combined heat and humidity.

Summer 2010 Heat/Humidity Rankings

City	Temperature		Dew Point	
	Avg.	Rank	Avg.	Rank
Cincinnati	77.0º	12	65.9º	3
Columbus	75.9º	5	63.8º	5
Dayton	75.2º	12	63.4º	5

September Tornado Outbreak

(continued from page 1)

damage to trees. The tornado appeared to "skip" along for approximately three miles with little to no damage in Rushville, but some minor damage to trees and buildings just east of town. This damage was consistent with an EF0 tornado with estimated winds up to 75 mph. The storm then continued eastward into Perry County (in NWS Charleston's warning area) and produced two much stronger tornadoes: an EF2 near Somerset and an EF1 near Crooksville.

A velocity image from the Columbus TDWR at 5:52 pm, showing two rotating storms that produced tornadoes near West Rushville (southeast of Pleasantville) and Tarlton (southeast of Circleville). ***Image courtesy of FAA.***

A third supercell developed near Circleville around 5:30 pm. Positioned on the south end of the squall line, it had an uninhibited flow of moist and unstable air. About 5:55 pm, a tornado touched down west of Tarlton, where two empty grain silos were tossed nearly one hundred yards. More significant damage occurred further southeast along the Fairfield/Pickaway County line. This damage consisted of numerous trees that were snapped or uprooted, a tree branch driven into the side of a house, a portion of a roof torn off another house, and an overturned semi truck.

A pole barn that was destroyed by a tornado in northwestern Hocking County. Material from this barn was found nearly a quarter mile away. ***Photo courtesy of Julie Dian-Reed (NWS employee).***

The tornado apparently lifted before reaching Tarlton and then touched down again in northwestern Hocking County near Middlefork Road, where numerous trees were snapped and a large pole barn was destroyed. All of this damage was consistent with an EF1 tornado with winds estimated up to 90 mph. Although this supercell maintained strong rotation across Hocking County, no additional damage was reported. However, this same storm later produced several stronger tornadoes across southeast Ohio and West Virginia.

Fortunately the damage from these long-lived storms was not widespread and there was only one injury reported, which was the result of a tree that fell onto a house in Delaware County. These strong storms had the potential to inflict much more harm, as was demonstrated just east of NWS Wilmington's warning area.

Spring Tornadoes and Flash Flooding

(continued from page 7)

The impacts were severe, with some roads completely washed out and houses that were either inundated or swept off their foundations. Water rescues became necessary near West Union when rapidly rising waters trapped some residents in their homes.

Altogether, there were seven tornado warnings, four severe thunderstorm warnings, and five flash flood warnings issued during the event.

Flood waters swept this mobile home near West Union completely off its foundation. The photo at right shows significant flash flooding near Mount Orab. ***Photos courtesy of Seth Binau (NWS employee).***

Know Your Winter Weather Terminology

With winter right around the corner, the National Weather Service reminds everyone to keep abreast of local forecasts and warnings and to familiarize themselves with the following winter weather terminology:

Winter Weather Outlook: Included in the Hazardous Weather Outlook (issued daily) when there is a 30% chance for a significant winter storm 3 to 7 days in the future. This product is meant to assist people with their long range plans.

Winter Weather Advisory: Issued for accumulations of snow, freezing rain, freezing drizzle, and/or sleet which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.

Winter Storm Watch: Alerts the public to the possibility of a blizzard, heavy snow, heavy freezing rain, or heavy sleet. Usually issued 12 to 48 hours before the beginning of a winter storm.

Winter Storm Warning: Issued when hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet is imminent or occurring. Usually issued 12 to 24 hours before the event is expected to begin.

Blizzard Warning: Issued for sustained or gusty winds of 35 mph or more and falling or blowing snow, creating visibilities at or below 1/4 mile. These conditions should persist for at least three hours.

Ice Storm Warning: Issued when ice accumulation of 1/4 inch or more is expected.

Freezing Rain Advisory: Issued when less than 1/4 inch of ice accumulation is expected either from freezing rain/drizzle.

Wind Chill Advisory: Issued when wind chills are expected to be 10 to 24 degrees below zero for an extended period of time.

Wind Chill Warning: Issued for dangerous, life-threatening wind chills of 25 degrees below zero or less.

Snow Flurries: Light snow falling for short durations. No accumulation or a light dusting is all that is expected.

Snow Showers: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

Blowing Snow: Wind-driven snow that reduces visibility and causes significant drifting. The snow may be falling or loose on the ground.

Sleet: Rain drops that freeze into ice pellets before reaching the ground. Usually bounces upon contact and can accumulate like snow.

Freezing Rain: Rain that freezes upon contact with a cold surface, creating a glaze of ice.

National Weather Service
1901 S. State Route 134
Wilmington, OH 45177

www.weather.gov/iln/

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